

**PARKING SURVEY
AND
PROGRAM**

**CENTRAL
BUSINESS
DISTRICT**

**NORTHAMPTON
MASSACHUSETTS**

**RAMP BUILDINGS CORPORATION
PARKING CONSULTANT
NEW YORK, N. Y.**

Study - 1/20/57

city eng.

PARKING SURVEY
AND
PROGRAM

CENTRAL BUSINESS DISTRICT

NORTHAMPTON
MASSACHUSETTS

FEBRUARY 1953

RAMP BUILDINGS CORPORATION
PLANNING CONSULTANT
230 PARK AVENUE NEW YORK 17, N. Y.

RAMP BUILDINGS CORPORATION

230 PARK AVENUE
NEW YORK 17, N. Y.

February 4, 1953

Traffic & Transportation Committee
The City Council of Northampton
Northampton, Massachusetts

Gentlemen:

Transmitted herewith is our report upon parking conditions in the central business district of Northampton, together with a recommended program of off-street parking development.

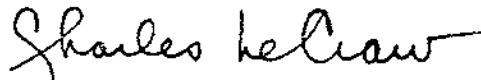
Actual field studies of traffic conditions show an unsatisfied parking demand of 3,034 parkers, sufficient to justify the development of approximately 750 off-street parking spaces.

A program is recommended which will provide 388 spaces at an estimated cost of \$258,000; approximately \$665 per parking space.

Annual income has been estimated at \$14,595 from the four proposed facilities. This revenue, together with 50% of the curb parking meter revenue, will provide sufficient funds to amortize a bond issue, as well as to repay the general fund for taxes lost on properties acquired for parking.

We appreciate the opportunity to submit the report, and will be pleased to discuss it with you at any time.

Respectfully submitted,
RAMP BUILDINGS CORPORATION



Charles S. LeCraw, Jr.
Assistant Vice President

CSL:IH

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GENERAL

Purpose Of Report

The purpose of this report is to set forth parking demands and to determine what additional off-street parking capacity is required in the central business district of Northampton, Massachusetts.

Based upon the determination of parking demands and the measurement of parking habits and characteristics of motorists, this report presents a program of new off-street parking facilities for the central district, including their number, location, type and capacity and estimated capital cost and earning power. The report also includes a recommended method of financing the proposed program.

Population

The population of the City of Northampton according to the 1950 census was 28,998. The population in the City has increased steadily from 6,788 in 1860 to its present level. The rate of growth has been fairly constant except for the period 1930-1940 during which time there was little growth. The population of the City has increased approximately 20% in the 30 year period from 1920 to 1950. Figure 1 shows the population growth of the City for the period 1860 to 1950.

Motor Vehicle Ownership

Figure 2 presents a summary of motor vehicle registration in Northampton from 1930 to 1951. The registration has increased more than 50% during this period from approximately 5,800 vehicles in 1930 to 9,356 vehicles in 1950. The number of registered vehicles decreased slightly during the period 1930 to 1934 due to the economic depression at

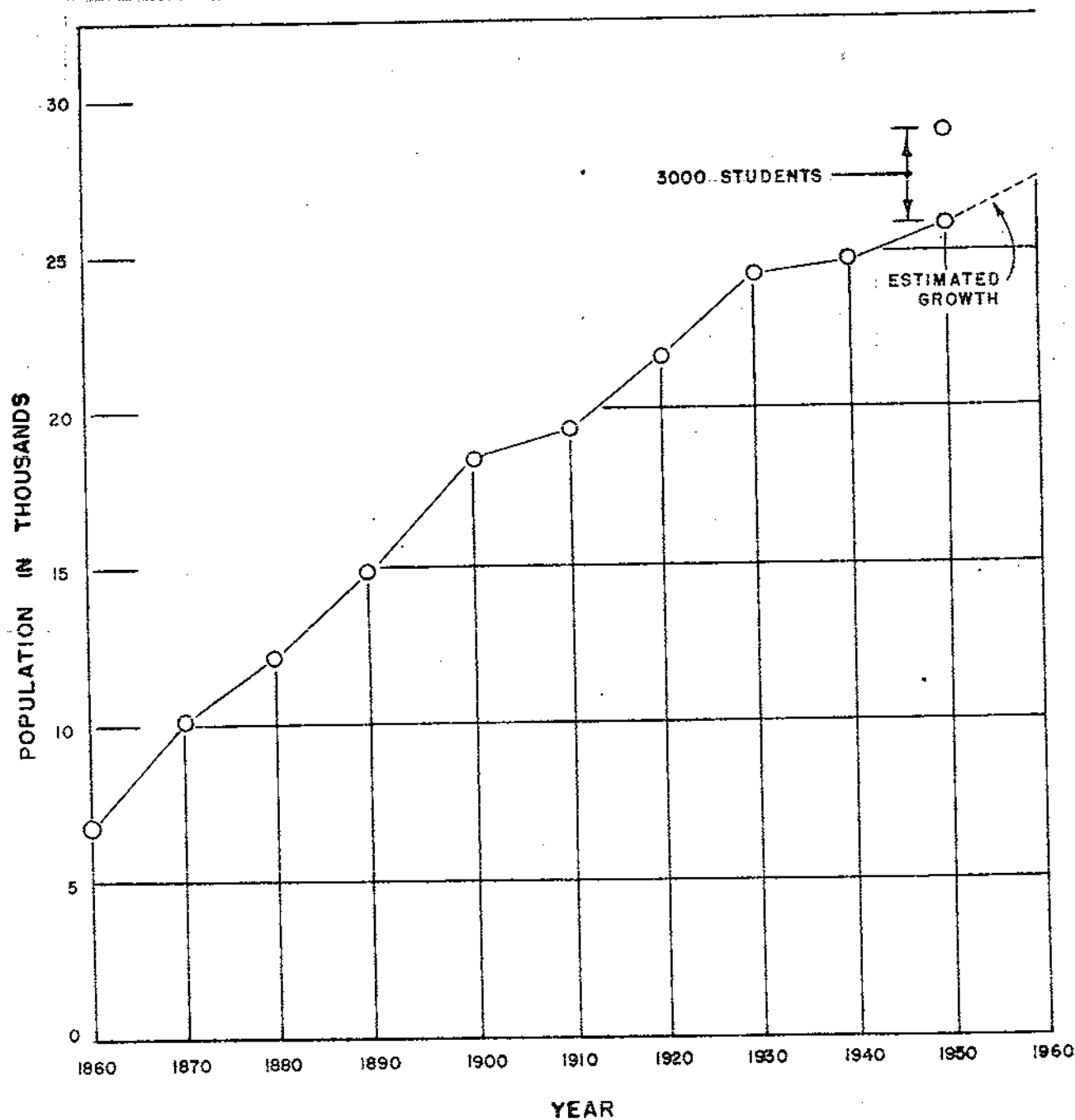


FIGURE 1
POPULATION TREND
1860—1960
NORTHAMPTON, MASS.

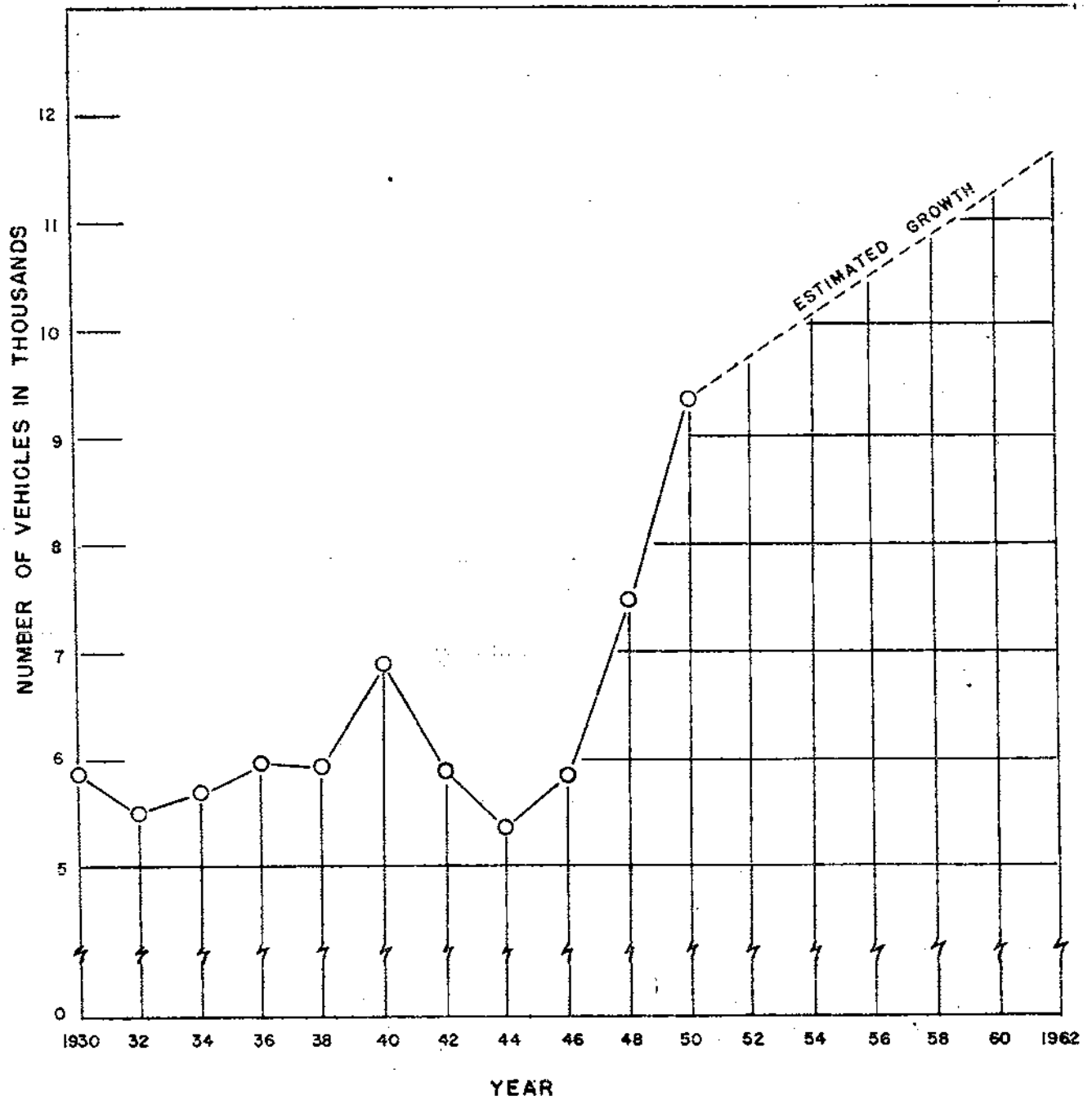


FIGURE 2
ALL MOTOR VEHICLES
REGISTRATION TREND
1930 — 1962
NORTHAMPTON, MASS.

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that time. Beginning in 1934 there was a continued increase through the year 1940 at which time the registrations were approximately 1,000 above the number recorded in 1930. Automobile production and use was sharply curtailed from 1941 to 1945, and the registrations reflect these restrictions. From 1946 to 1950 the increase in registrations has far exceeded the growth for any comparable four year period in the history of the City.

Registrations in Northampton are above the average for other cities in the Commonwealth of Massachusetts and are considerably above the national average. In 1950 there were 360 cars registered per 1,000 population in Northampton, compared to the national average of 208 cars per 1,000 population. Thus the car registration in Northampton is approximately 50% above the national average. It is well above the average of cities in the Metropolitan Boston area. This reflects the greater relative need for parking space in comparison with most eastern Massachusetts cities of comparable size.

INVENTORY OF EXISTING PARKING FACILITIES

An up to date inventory of existing curb and off-street parking facilities was made in the central business district during the month of September, 1952. Table 1 presents this information by type of parking spaces and shows the total number of parking spaces available in each zone of the Northampton business district.

Table 2 gives an itemized inventory of the off-street parking facilities showing names, address, type of facility, estimated capacity and other miscellaneous information pertaining to the facility. Figure 3 shows the approximate size and location of the various off-street parking facilities.

Within the seven zones comprising the central business district, there are a total of 1,315 parking spaces. Of this total, 578 or 44% are curb spaces, and 737 or 56% are off-street parking spaces.

It is interesting to note that only 260 off-street parking spaces are classified as "public" and, as shown in Figure 3, the two parking lots available to the general parking public are located on Old South Street and on Hampton Avenue, at considerable distances from the Main Street shopping area. The public parking garage located on King Street is not generally used by shopper-parkers. All other off-street parking facilities are classified either as "customer" of which there are 231, or "private" of which there are 246 spaces. These "customer" and "private" off-street spaces are not necessarily permanent if the owners find more profitable use for the land. Also, the public lot on Hampton Avenue is not at this time permanent. Therefore, the only permanent off-street spaces

TABLE 1
AVAILABLE PARKING SPACES
CENTRAL BUSINESS DISTRICT

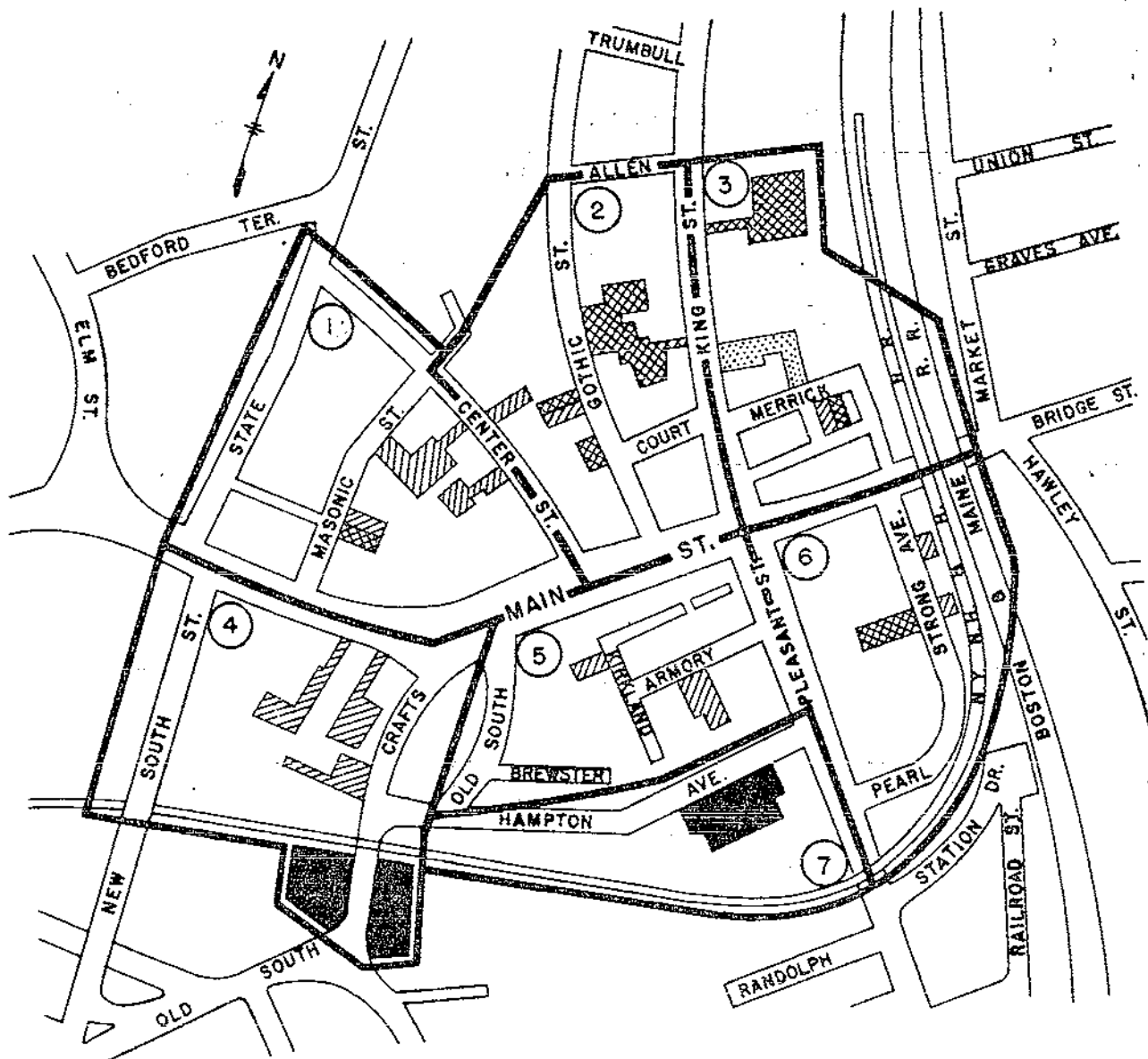
Zone	CURB		OFF-STREET			Total
	Metered	Unmetered	Public	Customer	Private	
1	56	49	0	7	74	186
2	49	46	0	115	27	237
3	45	35	25*	79	17	201
4	34	41	150	0	66	291
5	65	25	0	0	32	122
6	70	26	0	30	30	156
7	3	34	85	0	0	122
Total	322 (24.5%)	256 (19.5%)	260 (19.8%)	231 (17.5%)	246 (18.7%)	1,315 (100.0%)
	578 (44.0%)		737 (56.0%)			(100.0%)

*Actual Capacity 60; practical usage at time of study, 25.

TABLE 2
OFF-STREET PARKING INVENTORY
CENTRAL BUSINESS DISTRICT
NORTHAMPTON, MASS.

Zone	Name Of Facility, Owner, Operator	Address Of Facility	Type Of Facility	Capacity	Remarks
1	First Church of Christ Scientist	79 Masonic Street	Private Lot	35	Spaces for monthly rental
1	Boston Food Store	27 Masonic Street	(a) Private Lot (b) Customer Lot	7 7	Spaces for rent For customers of Boston Food Store; 1 hr. limit
1	Chilson's Shops	34 Center Street	Private Lot	16	Spaces for monthly rental; \$2.00 & \$5.00 per month
1	Private Alleys	Throughout Zone	-	16	-
2	Police Station	37 Center Street	Private Lot	10	-
2	Hotel Northampton	(a) 40 King Street (b) 30 Gothic Street	Customer Lot Customer & Private Lot	90 20	For hotel guests only Hotel guests & employees
2	Northampton Inst. for Savings	10 Gothic Street	Customer Lot	12	For customers of bank; lot closes at 4 PM
2	Private Alleys	Throughout Zone	-	10	-
3	Hotel Northampton	35 King Street	Public Garage	60	Fees: \$1.00/night; \$4.50/week; \$15.00/month
3	Pleasant Market	21 Main Street	(a) Private Lot (b) Customer Lot	7 7	Spaces for rent For customers of Pleasant Mkt.

Zone	Name Of Facility, Owner, Operator	Address Of Facility	Type Of Facility	Capacity	Remarks
3	First National Stores	69 King Street	Customer Lot	72	For customers of First National Stores; 1 hr. limit
3	Private Area	Off King Street	-	10	-
4	City of Northampton	Old South Street	Public Lot	East Side-65 West Side-85	Free Parking, no time limit
4	Memorial Hall	240 Main Street	Private Lot	15	For employees
4	City of Northampton	City Hall	Private Lot	26	For City Officials
4	Northampton Gas Light Company	Crafts Street	Private Lot	25	For employees
5	Daily Hampshire Gazette	18 Armory Street	Private Lot	20	For employees
5	McCallum's of Northampton	Kirkland Avenue	Private Lot	7	For employees
5	Private Alleys	Throughout Zone	-	5	-
6	-	Strong Avenue	Private Lot	6	Spaces reserved
6	-	Strong Avenue	Private Lot	6	Spaces reserved
6	Grower's Outlet	27 Strong Avenue	Customer Lot	30	For customers of Grower's Outlet, Inc.
6	Private Areas	Between Strong Ave. & Pleasant Street	-	18	-
7	City of Northampton	Hampton Avenue	Public Lot	85	Free parking, no time limit



LEGEND

-  PUBLIC LOTS
-  CUSTOMER LOTS
-  PRIVATE LOTS
-  PUBLIC GARAGE
-  ZONE NUMBER

SCALE - 1" = 400'

FIGURE 3

EXISTING OFF-STREET
PARKING FACILITIES
CENTRAL BUSINESS DISTRICT
NORTHAMPTON, MASS.

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NEW YORK, N.Y.

available to the public total 175 and the majority of these are located an excessive distance from the center of shopping activity.

As traffic volumes increase it will become necessary to restrict curb parking in some locations adjacent to the central business district. Fortunately, Main Street is very wide and it appears probable that curb-parking might be restricted at only a few locations. It is likely that a great deal of parking space will be removed from Pleasant Street. Thus the supply of available parking spaces will be reduced and, according to our forecasts, the same period will show a continued increase in motor vehicle registrations.

PARKING DEMAND - CENTRAL BUSINESS DISTRICT

In order to determine the total demand for parking space in the central district of Northampton, it was necessary to determine the total number of vehicles entering and leaving the district. A cordon count was made at which time all vehicles entering and leaving the district were recorded by various streets. A representative sample of the drivers entering the district were interviewed to determine the origin of their trips and their destinations within the central district. It is only by an actual interview of the driver that an accurate location of his desired parking area can be ascertained. From the representative sample of interviews the data was expanded to include the total number of vehicles desiring parking space in the various zones of the central district.

During an average 10 hour business day from 8 AM to 6 PM, a total of approximately 16,700 passenger cars and light trucks enter the central business district. Table 3 shows the inbound and outbound cars for each 15 minute period of the day during this 10 hours. It is interesting to note that the maximum inbound period during the day, except for the rush of through traffic at the close of the business day, is from 12:45 to 1 PM, when 537 vehicles enter the central district. The maximum outbound period is from 5 to 5:15 PM, when 733 vehicles are outbound from the business district. Table 3 also lists the accumulation of vehicles within the central district. As the table shows, the accumulation of vehicles builds up steadily from about 500 vehicles at 8 AM to a high of approximately 1,000 vehicles during the early afternoon. The accumulation remains steady and then decreases in the later afternoon.

TABLE 3
MOTOR VEHICLE TRAFFIC
ENTERING & LEAVING BUSINESS DISTRICT

	PASSENGER CARS & LIGHT TRUCKS			HEAVY TRUCKS & BUSES		
	Inbound	Outbound	Accum- ulation	Inbound	Outbound	Accum- ulation
Cars Parked 8 AM			499			75
8:00- 8:15 AM	379	302	576	33	32	76
8:15- 8:30	410	292	694	38	40	74
8:30- 8:45	369	311	752	27	34	67
8:45- 9:00	457	360	849	30	30	67
9:00- 9:15	344	281	912	35	39	63
9:15- 9:30	373	352	933	40	37	66
9:30- 9:45	368	370	931	40	43	63
9:45-10:00	327	320	938	36	38	61
10:00-10:15	357	395	900	36	37	60
10:15-10:30	351	335	916	37	31	66
10:30-10:45	375	295	996	27	28	65
10:45-11:00	289	355	930	34	32	67
11:00-11:15	427	396	961	40	45	62
11:15-11:30	313	388	886	31	33	60
11:30-11:45	399	354	931	37	33	64
11:45-12:00 Noon	407	461	877	33	24	73
12:00-12:15 PM	485	490	872	32	23	82
12:15-12:30	316	314	874	25	27	80
12:30-12:45	404	449	829	23	25	78
12:45- 1:00	537	445	921	31	31	78
1:00- 1:15	479	450	950	38	40	76
1:15- 1:30	360	377	933	34	30	80
1:30- 1:45	417	379	971	38	40	78
1:45- 2:00	402	450	923	31	32	77
2:00- 2:15	431	422	932	30	39	68
2:15- 2:30	375	449	858	26	28	66
2:30- 2:45	456	436	878	44	37	73
2:45- 3:00	393	451	820	40	43	70
3:00- 3:15	448	451	817	33	39	64
3:15- 3:30	404	416	805	46	37	73
3:30- 3:45	423	419	809	35	40	68
3:45- 4:00	426	401	834	31	37	62
4:00- 4:15	507	570	771	45	49	58
4:15- 4:30	424	471	724	26	14	70
4:30- 4:45	588	584	728	27	33	64
4:45- 5:00	574	560	742	20	27	57
5:00- 5:15	592	733	601	16	28	45
5:15- 5:30	529	690	440	26	28	43
5:30- 5:45	477	670	247	28	29	42
5:45- 6:00	365	468	144	14	22	34
	16,757	17,112		1,293	1,334	

Table 3 also shows similar information for heavy trucks and busses. Figure 4 shows traffic movements into and out of the central district by all streets for the period 8 AM to 6 PM. King Street carries the maximum two-way traffic with approximately 9,400 vehicles being recorded moving in both directions on this street. Main Street, on the west of the central district, carries a daily total of about 8,400 vehicles in two directions and Pleasant Street, on the south of the central district, carries a daily total of about 7,200 vehicles.

Passenger Car Destinations

Of the total vehicles entering the central district on an average business day, 8,666 or approximately 50% report destinations within the central district. These destinations are shown for the various zones of the downtown district in Column (14) of Table 4. As would be expected, Zone 5, bounded by Old South Street, Main Street, Pleasant Street and Hampton Avenue, reports the maximum number of destinations, 2,816 passenger cars desiring parking in this zone on an average day.

Unsatisfied Parking Demand

The other columns of Table 4 present the information necessary to derive the unsatisfied parking demand. Columns (1), (2) and (3) show respectively the number of existing curb spaces, the turnover rate, and the total parkers accommodated at curb spaces within each of the 7 zones. It is interesting to note that the curb turnover rates vary within the central district from a low of 4.3 cars per space per day in Zone #7 to a maximum of 9.6 cars per space per day in Zone #5 which adjoins Zone #7. The 578 curb spaces serve a total of 4,328 parkers on an average day.

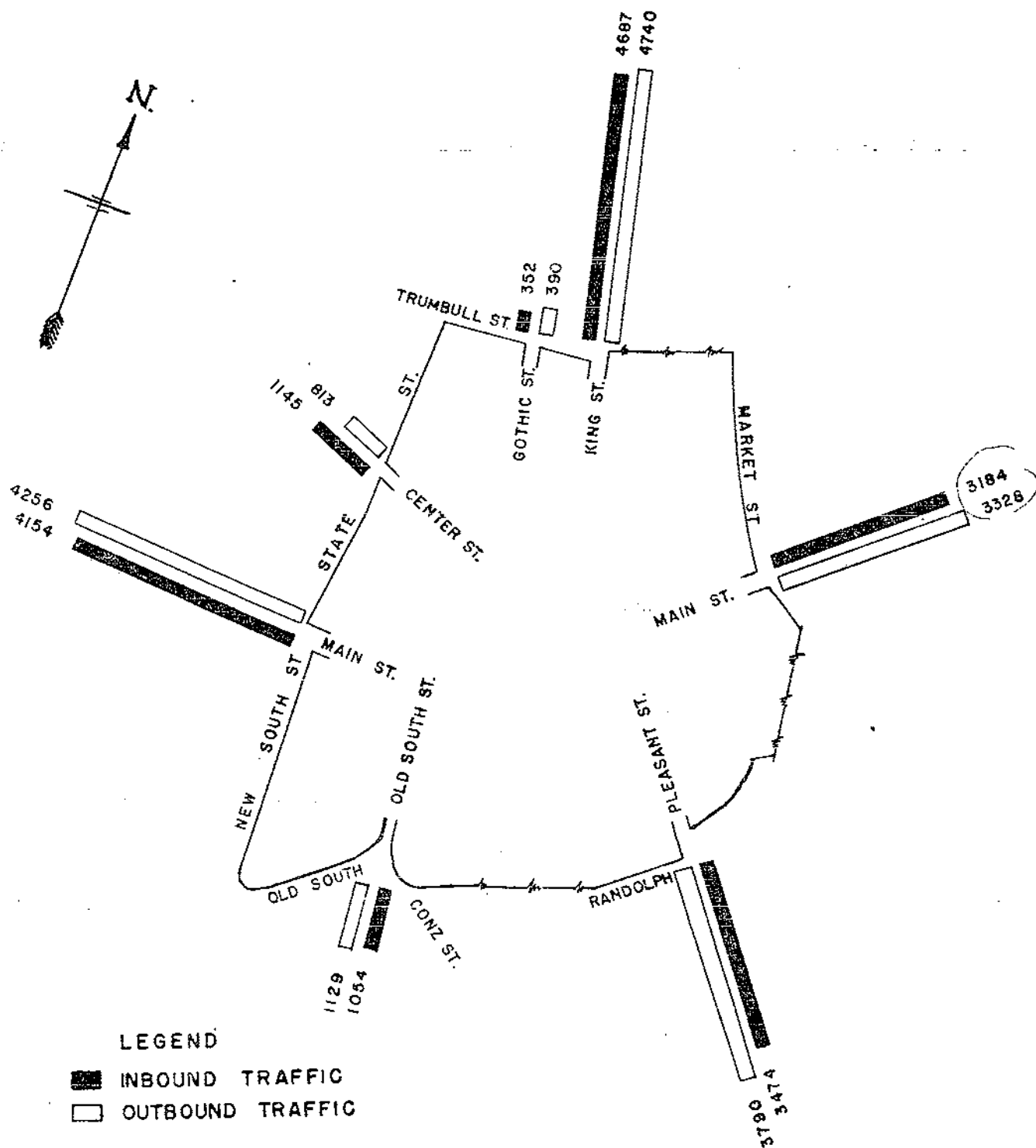


FIGURE 4
VEHICULAR TRAFFIC MOVEMENTS
8 A.M. TO 6 P.M.
CENTRAL BUSINESS DISTRICT
NORTHAMPTON, MASS.

PAR
AVERA

8

CENTRAL

Zone No.	CURB SPACES			PRIVATE SPACES			CUSTOM
	Number	Turnover Rate	Parkers Accom- modated	Number	Turnover Rate	Parkers Accom- modated	Number
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	105	9.5	1,001	74	0.7	51	7
2	95	5.4	513	27	2.0	54	115
3	80	7.5	600	17	0.8	14	79
4	75	6.8	509	66	1.1	72	0
5	90	9.6	864	32	0.9	29	0
6	96	7.1	680	30	0.8	24	30
7	37	4.3	161	0	0	0	0
Totals	578		4,328	246		244	231

Note: Red indicates

Note: Red Indicates

TABLE 4
PARKING DEMAND
URBAN BUSINESS DAY
8 AM to 6 PM
CENTRAL BUSINESS DISTRICT

CUSTOMER SPACES			PUBLIC SPACES			Total		
Turnover	Parkers			Turnover	Parkers	Parkers	Total	Surplus
Rate	Accom-		Number	Rate	Accom-	Accom-	Demand	Or
(8)	modated		(10)	(11)	modated	modated	(14)	Deficiency
	(9)				(12)	(13)		(15)
4.0	28		0	-	0	1,080	1,522	442
2.5	289		0	-	0	856	728	128
4.5	355		25	0.7	18	987	1,240	253
-	0		150	0.8	120	701	836	135
-	0		0	-	0	893	2,816	1,923
3.0	90		0	-	0	794	1,406	612
-	0		85	1.9	160	321	118	203
	762		260		298	5,632	8,666	3365
							5,632	331
							3,034	3,034

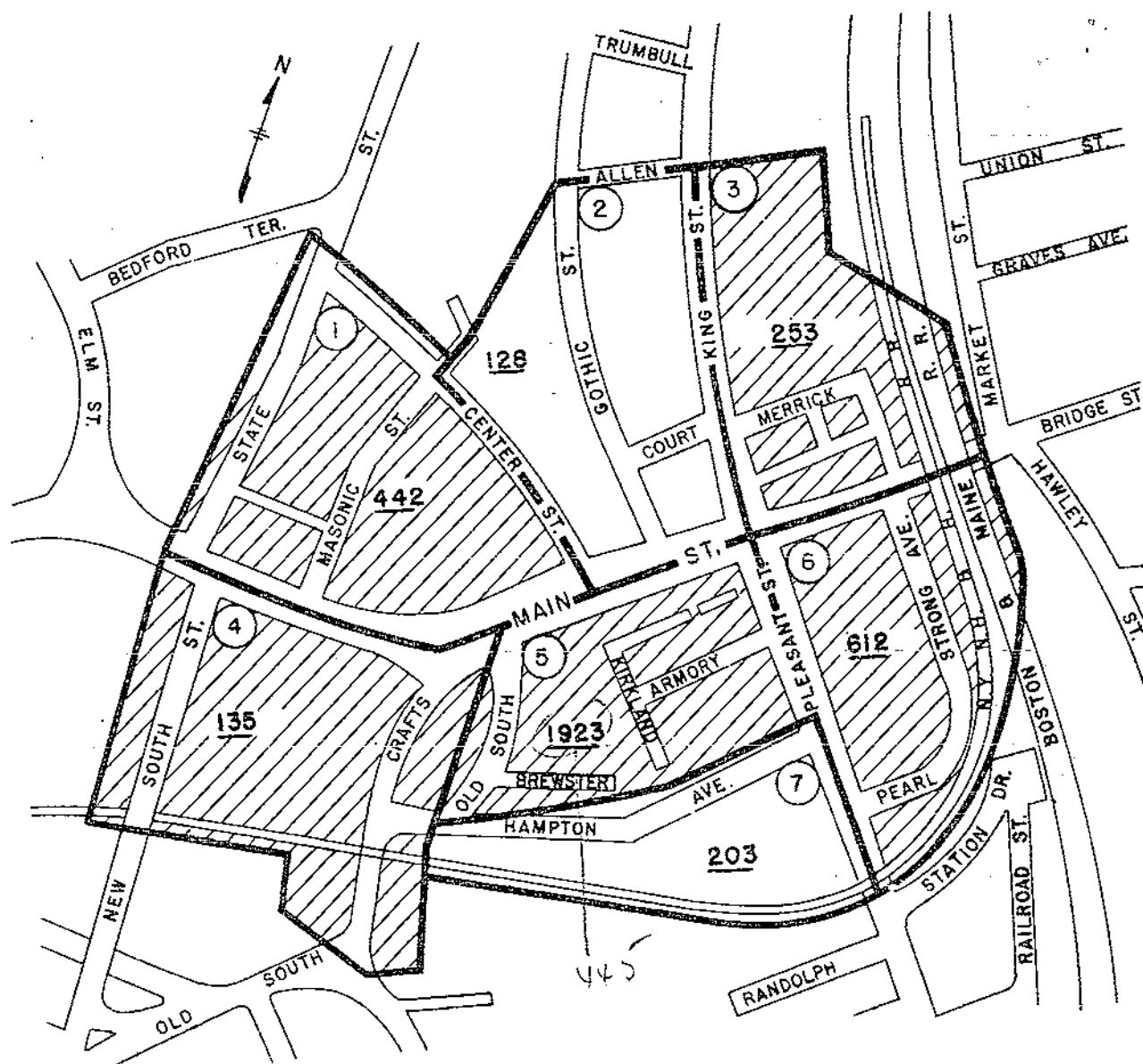
deficiency, that is, unsatisfied parkers

Columns (4), (5) and (6) present similar information for private off-street spaces. It is interesting to note that a number of these spaces do not fill completely during average days and that the maximum daily turnover reported for any of these facilities is 2 cars per space. The 246 spaces serve a total of 244 parkers on an average day.

Columns (7), (8) and (9) present the same type of information for customer off-street spaces, of which a limited number are found in 4 zones of the central district. A turnover of 4.5 is recorded for the 79 customer spaces located in Zone #3. The other turnovers vary from 2.5 to this maximum of 4.5. The 231 customer off-street spaces serve a total of 762 parkers daily.

The 260 public off-street spaces serve only 298 parkers on an average day, due primarily to their locations. This information is shown in Columns (10) through (12).

Column (13) lists the total parkers accommodated by all existing parking facilities. The 1,315 spaces in the central district of Northampton accommodate a total of 5,632 parkers on an average day. When this number is subtracted from the total desired destinations of 8,666, an unsatisfied parking demand of 3,034 is derived. The distribution of this unsatisfied demand is listed in Column (15) of Table 4 and shown graphically in Figure 5. Two zones, numbers 2 and 7, report a slight surplus of parking supply over demand. Zone #7 is capable of accommodating 203 additional parkers and Zone #2 can accommodate 128 additional parkers on an average day. All other zones in the central business district report deficiencies of parking space. Zone #5, which has the maximum total demand, also has the maximum unsatisfied parking demand, 1,923



LEGEND

- (3) ZONE NUMBER
-  UNSATISFIED PARKING DEMAND 3365 CARS
-  EXCESS-SUPPLY OVER DEMAND 331 CARS

SCALE - 1" = 400'

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FIGURE 5
UNSATISFIED PARKING DEMAND
CENTRAL BUSINESS DISTRICT
NORTHAMPTON, MASS.

parkers being unable to park in this block on an average day. Zone #6 offers the second highest unsatisfied parking demand with 612 parkers seeking space in this zone on an average day.

The question is immediately asked "Where are these unsatisfied parkers at the present time?". It is obvious that they will not use many existing spaces, since the consultant's studies prove that many of these spaces were empty at the present time. This is due predominantly to the location of the spaces, since the average shopper-parker is reluctant to walk an excessive distance. Numerous instances of double parking, particularly on Main Street, at loading zones, fire hydrants and other restricted locations, and cruising for parking were observed during the consultant's studies. Obviously, it is difficult to attract shopper-parkers to do business in the downtown district of Northampton if this situation is to continue. All these acts create traffic congestion as well as unsafe conditions. Therefore, a program to provide additional attractive off-street parking will not only assist the parking problem but will create more efficiency of traffic movement and reduce potential accident conditions.

Existing Parking Practices

Studies were conducted to determine the use of available parking spaces in the central business district of Northampton. As stated previously, the studies show that the 578 curb spaces accommodate 4,328 parkers on an average day. Table 5 summarizes the results of sample studies of curb parking practices. A total of 4,653 vehicles were observed parking in legal and illegal spaces, of which 4,328 were legally parked. Thus, it can be seen that almost 10% of the observed vehicles were parking in illegal spaces, another proof of the seriousness of the parking problem.

TABLE 5
CURB PARKING PRACTICES
8 AM-6 PM
AVERAGE DAY
(IN LEGAL SPACES ONLY)

Total Cars Parked (Legal & Illegal Spaces)	4,653
Legal Spaces Observed	578
Total Cars Parked In Legal Spaces	4,328
Turnover - Legal Spaces	7.5
No. Of Non-Violators (non-overtime)	3,880
% Of Cars Parked In Legal Spaces	90.4%
No. Of Violators (overtime)	448
% Of Cars Parked In Legal Spaces	9.6%
Total Available Legal Space Hours	5,780
Total Space Hours Used	3,731.0
% Of Total Available Space Hours Used	64.5%
Space Hours Used By Non-Violators (non-overtime)	2,676.9
% Of Space Hours Used	71.7%
Space Hours Used By Violators (overtime)	1,054.1
% Of Space Hours Used	28.3%
Average Parking Duration (in legal spaces)	
All Parkers	52 min.
Non-Violators (non-overtime)	41 min.
Violators (overtime)	2 hrs. 24 min.

Approximately 90.4% of the vehicles parked in compliance with time regulations and only 9.6% of the vehicles parked in excess of the posted regulations.

The number of vehicles parking overtime is not sufficiently accurate, however, to measure the seriousness of the problem and the term "space-hour" is used for this measurement. A space-hour is that amount of time consumed by one vehicle parking for a period of one hour. Thus, one vehicle parking in a single space for 10 hours of the day consumes 10 space-hours, as compared to the same 10 space-hours being used by 10 separate vehicles each parking in the one-space for only one-hour each.

Although only 9.6% of the vehicles parked overtime, they consumed 28.3% of all the space-hours used in the central district on an average day. Thus, the ratio of use between the short-time parker and the overtime parker is about 1 to 3, or stated another way, for each overtime parker who can be removed from existing curb spaces, approximately three additional short-time parkers can be accommodated.

This analysis should not be taken as criticism of the police department, since no studies were made of manpower availability or personnel assignment methods used in the police department. The condition listed above is not uncommon and has been found in many other cities of varying sizes. It is reported, however, in the hope that improvements can be obtained by more strict enforcement of overtime parking at existing curb spaces in order that the parking situation may be improved considerably without the expenditure of additional funds.

Interesting results are obtained from a study of curb parking durations in the central district. Approximately 56.7% of all curb parkers remain in their spaces for twenty minutes or less and an additional 18.7% of the curb parkers desire to park between twenty and forty minutes. Approximately 8.5% of the parkers remain in their spaces between forty minutes and one hour. Thus 83.9% of the parkers in the central district of Northampton remain in their spaces for one hour or less, and an additional 8.8% of the parkers desire to remain in their spaces between one and two hours. Therefore, 92.7% of all the parkers remain in their spaces for two hours or less.

Studies were made of curb parking practices during the period 6 to 9 PM on shopping nights. The general parking practices during this period were approximately the same as on average business days, with most of the curb parking spaces operating at or near capacity during the period. Approximately 80% of the total available space-hours were used, and the average parking duration was forty-nine minutes. This emphasizes the need for developing an off-street parking program not only for use on business days but for use by the public on shopping nights.

Major Parking Generators

Table 6 lists the most important destinations in the central district as recorded from the driver interviews conducted on average business days. McCallum's reports 815 driver destinations, followed in second place by the Post Office with 389 destinations. The 14 principal destinations constitute somewhat more than 40% of the total driver destinations in the central district on an average day.

TABLE 6
MAJOR PARKING GENERATORS
CENTRAL BUSINESS DISTRICT

<u>Destination</u>	<u>Address</u>	<u>Number Of Cars</u>
McCallum's of Northampton	154 Main Street	815
U. S. Post Office	47 Pleasant Street	389
First National Bank	1 King Street	360
First National Store	67 King Street	322
Northampton Hotel & Wiggins Old Tavern	36 King Street	320
Sears-Roebuck & Company	50 Main Street	269
Northampton National Bank	130 Main Street	170
Northampton City Hall	210 Main Street	149
Foster - Farrar Company	162 Main Street	140
Northampton Gas & Light Company	212 Main Street	137
Central Chambers Building	10-16 Center Street	131
Northampton Institute for Saving	109 Main Street	107
Rahar's Inn	7 Old South Street	94
Brandel's Drug Store	257 Main Street	93
Total		3,496
As Percentage of All Destinations		40.3%

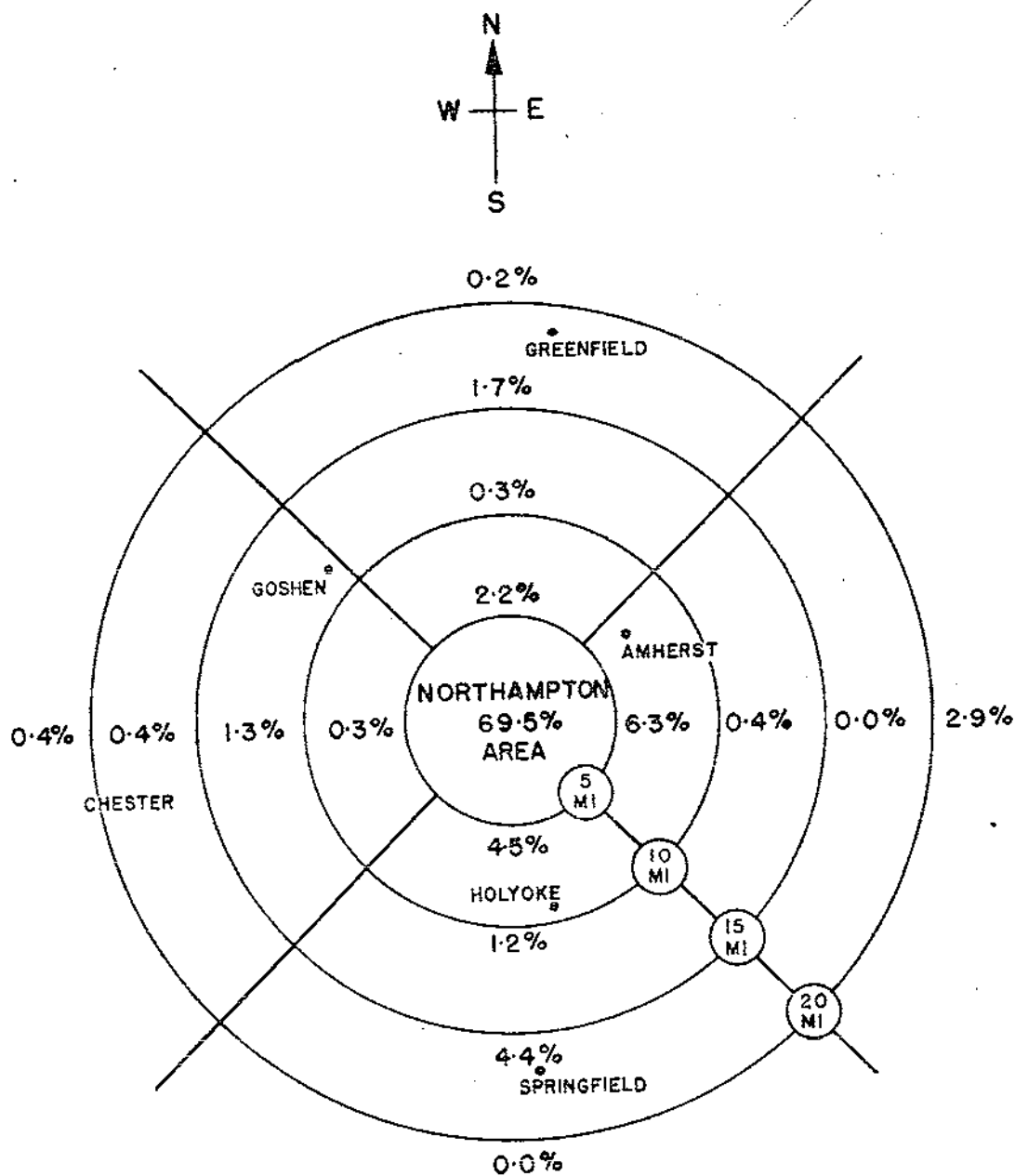
It can be seen that the banks and post office attract a large number of parkers. These parkers are of the very short-time type, requiring less than 30 minutes, and often only 3 or 4 minutes, to satisfy their needs. Special efforts to accommodate these particular trips will prove advantageous to the entire parking and traffic program.

Origin Of Trip

Interesting results were obtained from a summary of the origin of all motor vehicle trips into the central district of Northampton on average business days. This information is shown by Figure 6. The greatest number of trip origins ending in the central district are found within a five mile radius of the center, this area being referred to as "Northampton Area" in Figure 6. Approximately 69.5% of all trips originate within this area. The area immediately to the east of the central district and between five and ten miles away reports 6.3% of all trip origins, and the area immediately south of the center and between five and ten miles distance reports 4.5% of the origins. It is interesting to note that on the north and west, trips are recorded from distances greater than twenty miles, and that 4% of the trips originate from outside the state of Massachusetts.

Growth in Parking Demand

The consultant was directed to make predictions of parking demands for a ten year period in the future. While parking demand will increase somewhat in proportion to the increase in population, the estimate for which is shown in Figure 1, a more direct comparison of parking demand increase can be obtained from a study of motor vehicle registration experience.



ALL OUT-OF-STATE ORIGINS — 4.0%

FIGURE 6
DISTRIBUTION OF TRIP ORIGINS
OF PARKERS
CENTRAL BUSINESS DISTRICT
NORTHAMPTON, MASS.

Two methods of predicting future motor vehicle registration were used. In the first method, the ratio of population to registration was the basis for future predictions. In 1930, there was one car registered in Northampton for each 4.2 persons; in 1940 the ratio was 3.6, and in 1950 the ratio was 2.8. Thus the ratio of persons to cars has been getting smaller at an average rate of 0.7 per ten years. On this basis, in 1960 the ratio will be 2.1 persons per car. This ratio of car ownership versus the predicted 1960 population shows 13,000 vehicles registered in 1960, an increase of 39% over the 1950 registration.

In the second method of computing future registrations, the percent increase in registration for each ten year period was used. Thus from 1930 to 1940 motor vehicle registrations increased 19%, and from 1940 to 1950 the increase was 36%. The average increase for a ten year period was 27.5% between 1930 and 1950. From this basis, the 1960 registration is computed to be 11,900 vehicles. This method is reasonably close in its results to the first method outlined above since the second method provides a population to registration ratio of 2.3 as compared to a ratio of 2.1 computed by the first method:

Still another computation method might be employed in which a straight line increase from 1930 through 1950 to the year 1960 is used. This shows an estimated registration of 11,200 in 1960, representing an increase of 20% in the ten years from 1950 to 1960.

The growth rate for motor vehicle registration for the next ten years, 1952 to 1962, can therefore be estimated as varying between 20% and 39% of present registrations. Obviously, these estimates are based upon continued economic activity in the area, and any major economic or

sociological changes which occur in central Massachusetts or in Northampton will seriously affect these estimates.

It is assumed that traffic volumes and parking demand will both increase in approximately the same ratio as motor vehicle registration. This is believed to be conservative since the majority of national predictions have assumed a large increase in use for individual vehicles, and the assumptions made for this report provide only for increased numbers of vehicles. The total estimated growth in parking demand for 1962 is estimated at 25%.

Additional parking demand can be expected in the form of induced or generated traffic. Studies made throughout the country have shown that this figure can vary widely, but the consultants estimate an additional, 13% increase in parking demand due to generated parking created by the availability of attractive off-street parking space.

The 1952 parking demand was 8,666 cars, the 1962 demand is estimated to be 11,561 cars, by combining the increase from registration growth with the generated demand.

RECOMMENDED PROGRAM OF PARKING FACILITY DEVELOPMENT

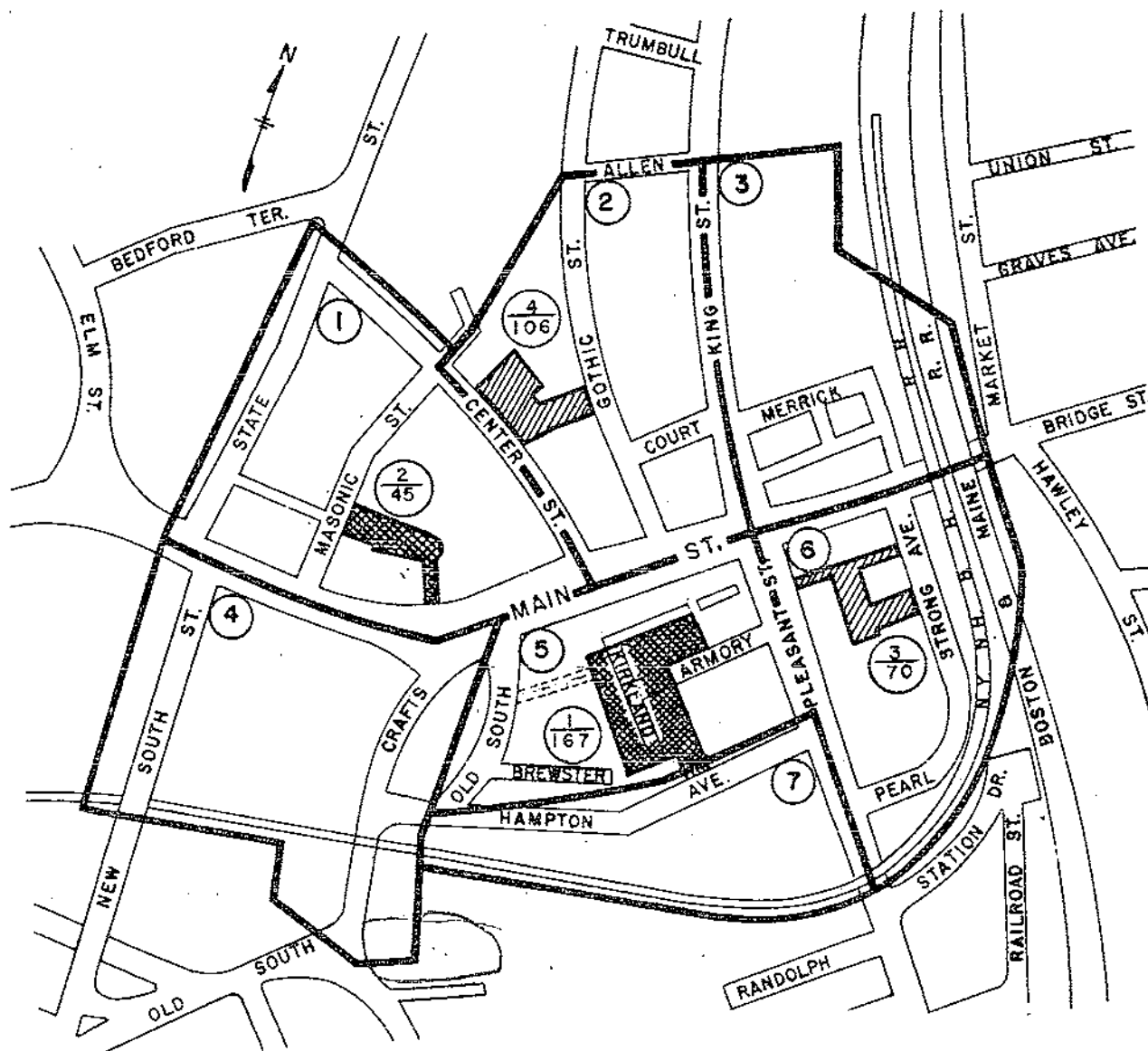
General

The consultant was directed to recommend a program to guide the immediate development of additional off-street parking facilities as well as a long-range program of development through the future 10 year period. Such a program should be so located and designed as to serve the immediate needs for additional parking facilities. It should also be located in areas which will permit eventual expansion of the recommended facilities, either through the enlargement of the properties involved or through the possible development of parking decks.

Based on a reasonable turnover of space to accommodate the number of unsatisfied parkers presently observed, there is now a demand for approximately 750 additional spaces in the central district. The consultant estimates that by 1962 approximately 500 additional off-street spaces beyond the recommended program will be needed in the central district. A specific program for meeting these future demands has not been prepared, since the exact location of the future demands cannot be determined at this time. However, it is believed that a large part of the future demand will occur in zones 1, 5 and 6 where the demand is now concentrated.

Immediate Program

The consultant recommends the immediate development of two off-street parking facilities to be located in Zones #1 and #5. The program is shown by Figure 7. Parking lot #1, located along Kirkland Avenue and Armory Street in Zone #5, will accommodate 167 cars. It is the most important development to the City of Northampton. The merchants on



LEGEND



INITIAL PROGRAM

212 SPACES



SECONDARY PROGRAM

176 SPACES



← LOT NUMBER

← LOT CAPACITY



← ZONE NUMBER

SCALE - 1" = 400'

RAMP BUILDINGS CORPORATION

NEW YORK, N.Y.

FIGURE 7

RECOMMENDED PROGRAM
OF PARKING LOT DEVELOPMENT
CENTRAL BUSINESS DISTRICT
NORTHAMPTON, MASS.

Main Street must cooperate by providing rear entrances from the lot to their business establishments. It would also be very desirable to develop two-way vehicular access from this lot to Old South Street along the McCallum Building as shown by dotted lines in Figure 7.

Lot #2, located on Masonic Street is believed to be only the beginning of a much larger parking lot in this block. Future long-range development could be encouraged here by the removal of many of the old warehouse buildings in the interior of the block. One-way use of the alley from Main Street is essential to pedestrian safety. Adequate space has been provided for truck loadings adjacent to this parking lot.

The initial program will provide 212 parking spaces with an actual net gain of 195 spaces as shown in Table 7.

Secondary Program

The consultants recommend the eventual development of two additional parking lots, one to be located in Zone #6 between Pleasant Street and Strong Avenue to accommodate 70 vehicles and the other to be located between Center Street and Gothic Street and to accommodate 106 vehicles.

Parking lot #3, serving chiefly those parkers destined for Zone #6 but also some of those destined for Zone #3, should have the cooperation of merchants in establishing attractive rear entrances for the stores adjacent to the lot on Pleasant and Main Streets. While this is good business for the merchants involved, it is also a necessary adjunct to the success of the parking facility, since one of the problems at the present time involves excessive walking distances from parking facilities to retail stores. The land taken for parking lot #3 has been confined only to the amount needed from the parcels on Pleasant Street in order to provide

TABLE 7
PARKING SPACES PROVIDED
BY RECOMMENDED PROGRAM

<u>PARKING SPACES</u>			
<u>Site</u>	<u>Now On Site</u>	<u>Proposed</u>	<u>Net Gains</u>
1	3	167	164
2	14	45	31
3	6	70	64
4	<u>20</u>	<u>106</u>	<u>86</u>
<u>Total</u>	<u>43</u>	<u>388</u>	<u>345</u>

loading access to the stores facing on Pleasant Street. The alley from Pleasant to Strong Avenue at the rear of Main Street stores has been left open.

Parking lot #4 between Center and Gothic Streets has been selected to serve chiefly the long-time parker. Some spaces near the shopping areas are to be limited to two hour parking, but others will be for long-time parking.

The complete program as recommended herein and as shown in Figure 7 is based on present unsatisfied demands. If the City wishes to construct both phases of the program immediately, the action is entirely recommended.

Parking Lot Designs

Drawings of the suggested layouts for the four parking lots are included as Figures 8 to 11 inclusive. All of the lots are recommended for development as metered self-parking lots. Stalls are provided at 90° to an open aisle, permitting any car in the lot to be moved in or out of a stall without the necessity of moving another car. Entrances and exits are provided on at least two streets in all cases. The minimum dimensions of the parking stalls throughout the lots are 8 feet 3 inches in width and 17 feet 6 inches in length.

The lots should be improved with a permanent surface and adequate drainage facilities. A high standard of lighting is most important for night shopping. Fencing may be used around portions of the lots abutting private properties. This requirement should be flexible, however, since property owners adjacent to the parking facilities should be encouraged to open rear areas of business establishments in order to provide direct

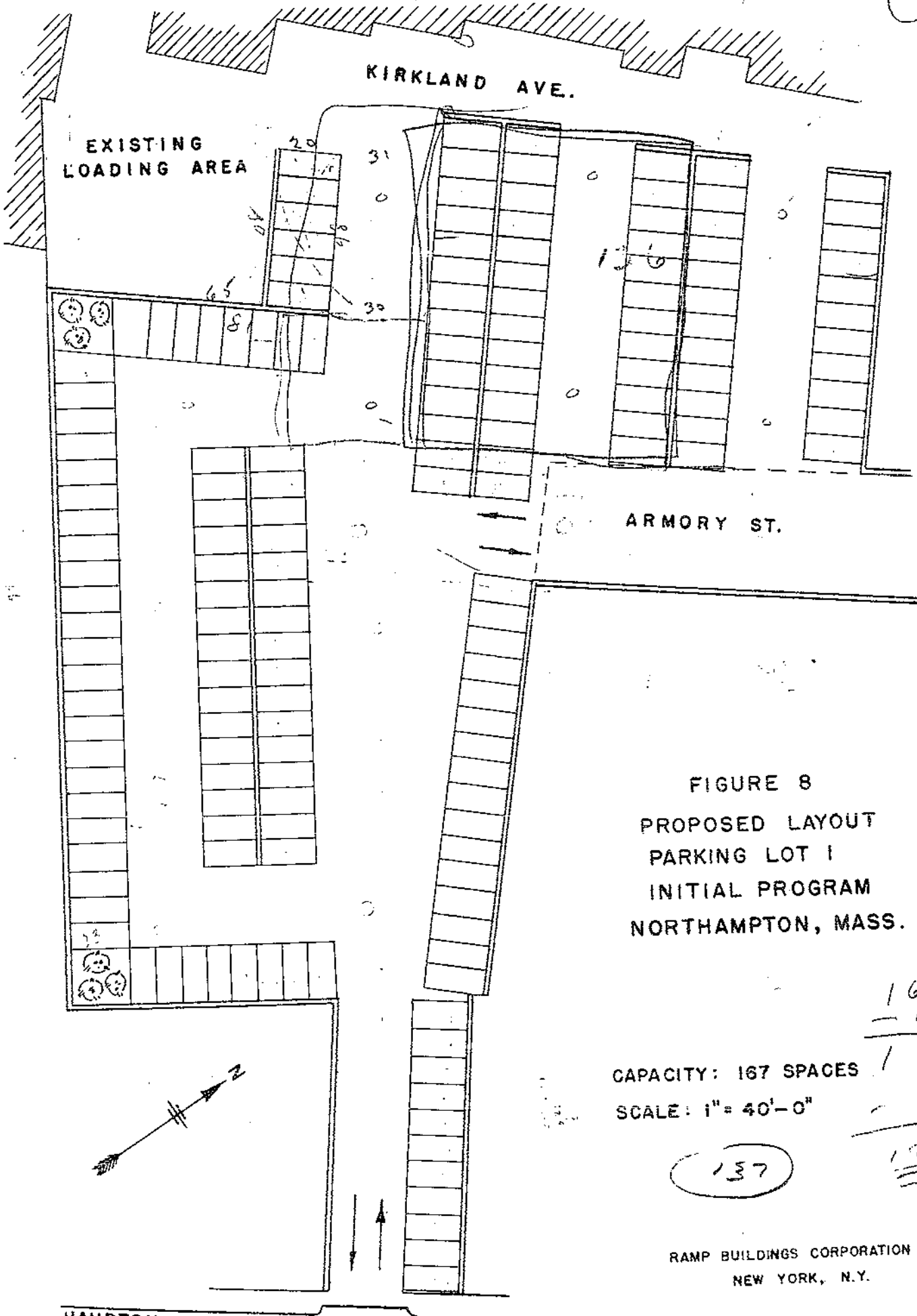


FIGURE 8
PROPOSED LAYOUT
PARKING LOT 1
INITIAL PROGRAM
NORTHAMPTON, MASS.

CAPACITY: 167 SPACES
SCALE: 1" = 40'-0"

137

167
- 17

150
10

160

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NEW YORK, N.Y.

HAMPTON AVE.

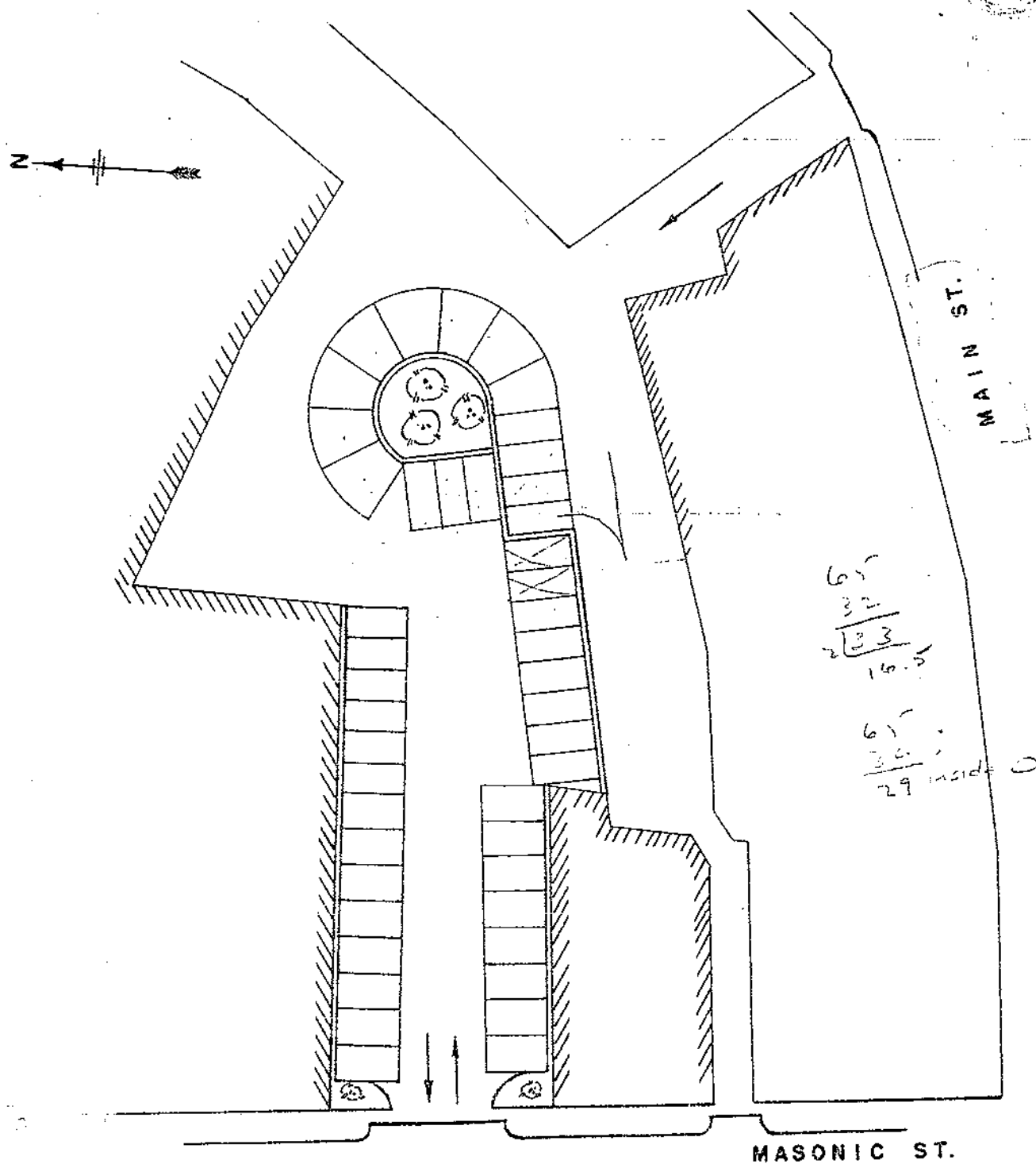


FIGURE 9
PROPOSED LAYOUT
PARKING LOT 2
INITIAL PROGRAM
NORTHAMPTON, MASS.

CAPACITY: 45 SPACES
SCALE: 1" = 40'-0"

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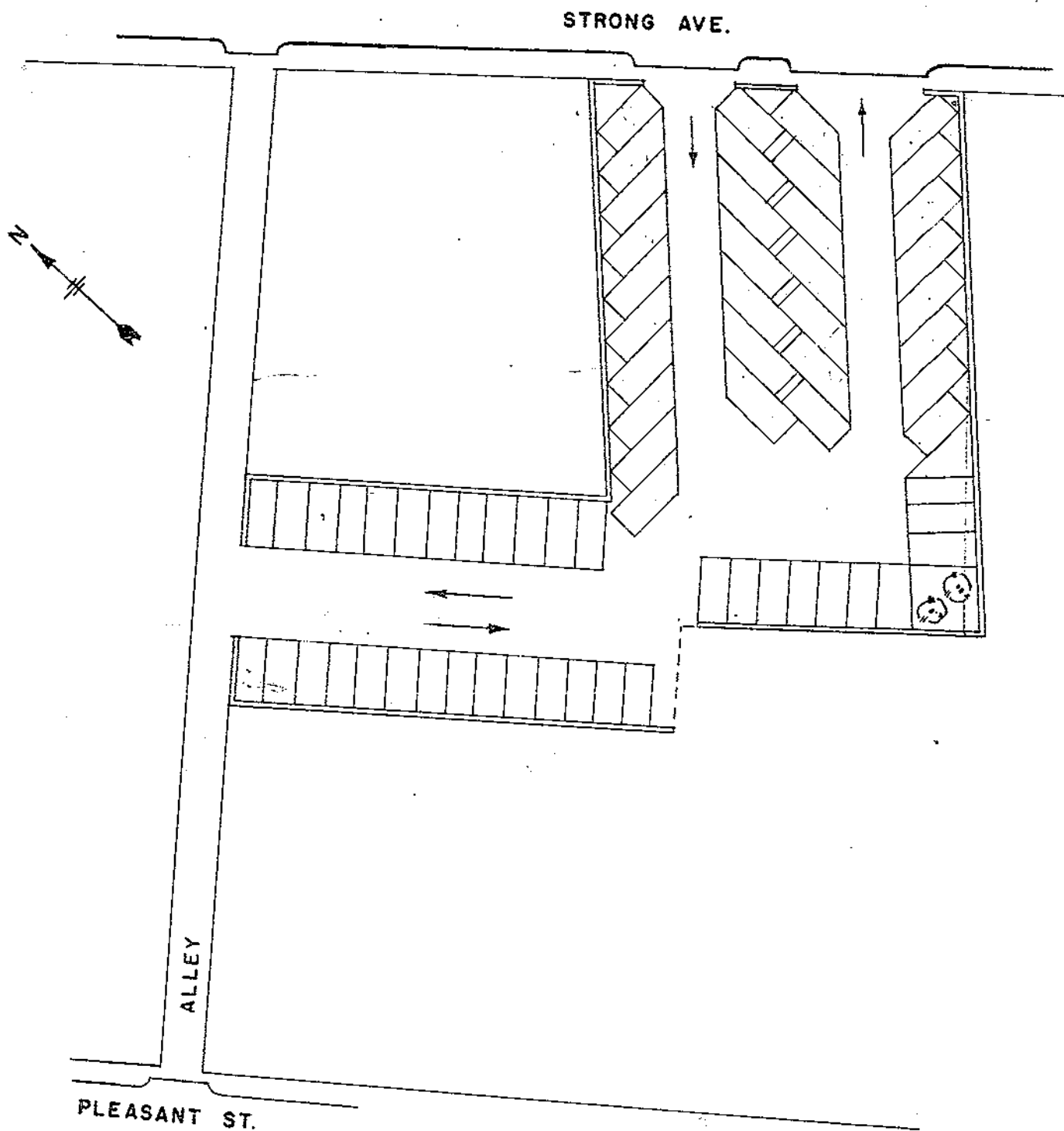


FIGURE 10
PROPOSED LAYOUT
PARKING LOT 3
SECONDARY PROGRAM
NORTHAMPTON, MASS.

CAPACITY: 70 SPACES
SCALE: 1" = 40'-0"

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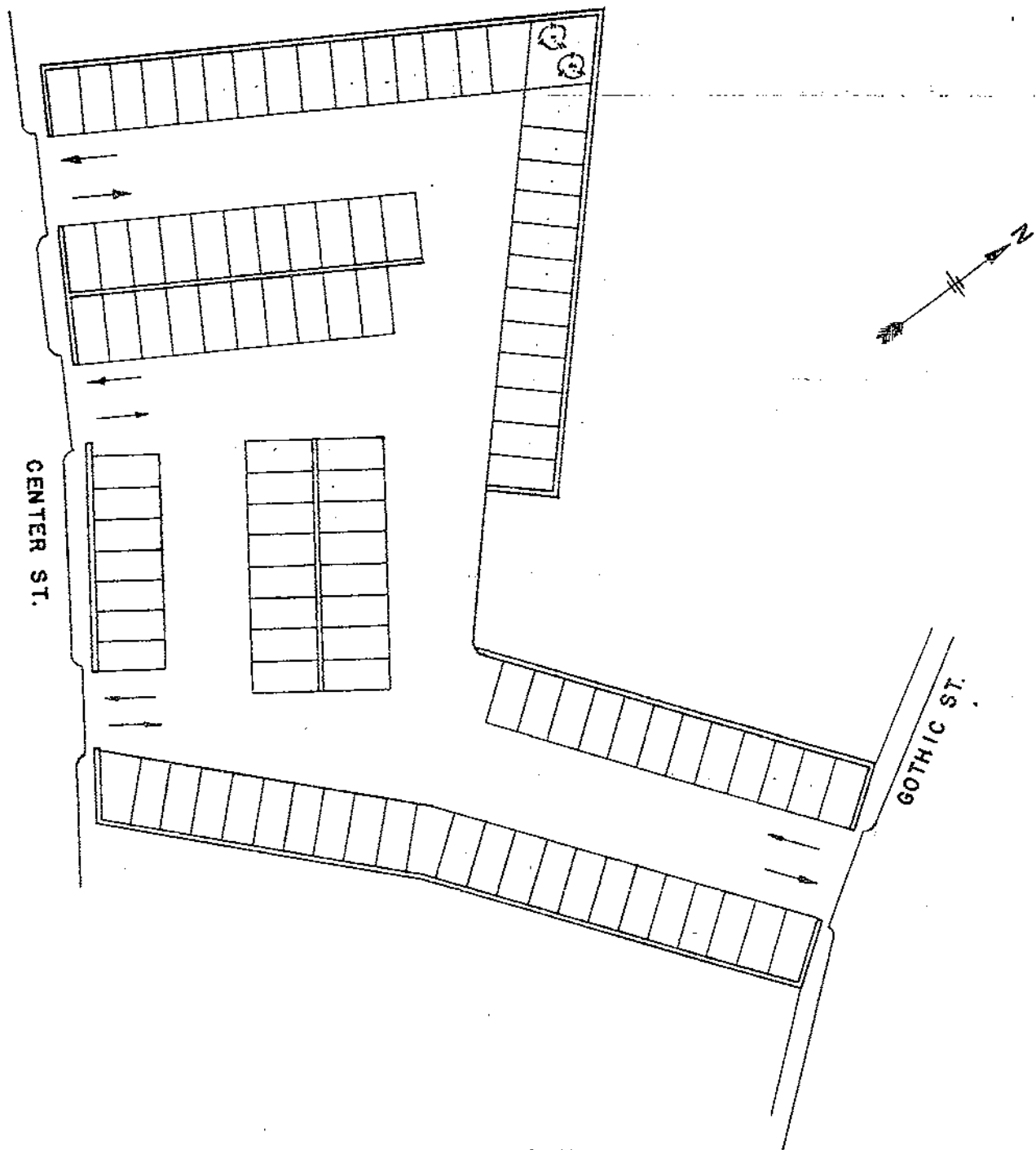


FIGURE II
PROPOSED LAYOUT
PARKING LOT 4
SECONDARY PROGRAM
NORTHAMPTON, MASS.

CAPACITY: 106 SPACES

SCALE: 1" = 40'-0"

RAMP BUILDINGS CORPORATION
NEW YORK, N.Y.

access from the parking facilities to the business involved. The City should assume no expense of providing these connections between the parking lots and retail establishments.

Table 8 gives the land parcels included for each of the proposed parking lot sites, the 1952 assessments for each of the parcels as obtained from the City Assessor's office and the assessments plus 25% which is used as the estimated land acquisition cost in accordance with customary legal procedure in the Commonwealth of Massachusetts.

Capital Cost

Table 9 summarizes the estimated capital cost of the proposed parking program. The table shows all details of improvement costs for each of the four recommended sites, as well as the estimated total capital requirements for the entire program. From this table any single project or combination of projects can be selected for initial development. Land cost for the four facilities amounts to \$88,500 on the basis of assessment plus 25%. An item of \$33,000 has been allowed for the demolition of existing structures on the four sites, with a large portion of this to be used on Site 1. It is entirely possible, however, that the cost of removing and demolishing existing structures on some of the sites may be offset to some degree by the salvage value of the materials involved.

Draining and surfacing of the lots has been estimated at prevailing unit costs in the New England area. This should be ample and should cover the cost of any fill which may be necessary on some of the locations. Costs have been estimated for curbing and drainage based on prevailing prices at the time of this report. Details of the layout of these items are not included since the drainage plans must be coordinated with the general

TABLE 8
PROPERTY VALUES
PROPOSED PARKING PROGRAM

Parcels	1952 Assessments	1952 Assessments Plus 25%	Total
SITE 1			
✓ 16 Kirkland 370-17 4-5-82	\$ 1,100	\$ 1,375	
✓ 20 Kirkland 812-105 2-11-25	1,500	1,875	
✓ 26 Kirkland 620-103 7-1-07	1,500	1,875	
✓ 39 Kirkland 424-039 3-29-89	2,800	3,500	
✓ 43 Kirkland 781-163 6-24-22	3,000	3,750	
✓ 45-47 Kirkland 756-343 4-21-20	3,300	4,125	
✓ 48-50 Kirkland 729-219 5-12-18	3,000	3,750	
✓ 19 Armory 457-238 2-24-93	3,500	4,375	
✓ 23 Armory 457-238 2-24-93	3,400	4,250	
✓ 25-27 Armory 812-105 2-11-25	2,100	2,625	
✓ 22-28 Armory 613-298 12-24-06	7,100	8,875	
✓ 25 Hampton 632-136 7-2-08	2,900	3,625	
Total	\$35,200	\$44,000	\$44,000
SITE 2			
27-33 Masonic	\$ 5,000	\$ 6,250	
Rear 205 Main	4,100	5,125	
Total	\$ 9,100	\$11,375	\$11,375
SITE 3			
19-19A Strong	\$ 7,500	\$ 9,375	
23-25 Strong	6,200	7,750	
Rear 24-36 Pleasant	6,000*	7,500	
Rear 48-54 Pleasant	600*	750	
Total	\$20,300*	\$25,375	\$25,375
SITE 4			
25 Center	\$ 5,000	\$ 6,250	
37 Center	Police Station	0	
Part 32 Gothic	1,200*	1,500	
Total	\$ 6,200*	\$ 7,750	\$ 7,750
Total Program			\$88,500

* Estimated.

TABLE 9
CAPITAL COST AND EARNINGS
PROPOSED PARKING PROGRAM

Site Number	1	2	3	4	Total
Site Description	Armory, Kirkland, & Old South Sts. & Hampton Avenue	Masonic St. & Rear of Main Street	Strong Avenue, Rear of Main & Pleasant Streets	Center & Gothic Sts.	
Land Area (square feet)	43,630*	10,830	22,000	31,770**	108,230
Car Spaces Provided	167	45	70	106	388
CAPITAL COST					
Land (Assessment plus 25%)	\$ 44,000	\$11,375	\$25,375	\$ 7,750	\$ 88,500
Improvements					
Demolition	13,000	4,500	7,000	8,500	33,000
Grading & Surfacing	15,500	4,330	7,750	12,500	40,080
Curbing	4,360	1,100	3,300	3,200	11,960
Drainage	1,350	650	660	950	3,610
Lighting & Fencing	4,500	1,000	2,600	3,500	11,600
Miscellaneous	8,790	5,620	4,410	5,630	24,450
Total Improvement Cost	\$ 47,500	\$17,200	\$25,720	\$34,280	\$124,700
Meter Equipment	\$ 11,700	\$ 3,150	\$ 4,830	\$ 7,420	\$ 27,100
Contingency Reserve	\$ 8,800	\$ 2,275	\$ 5,075	\$ 1,550	\$ 17,700
Total Capital Cost	\$112,000	\$34,000	\$61,000	\$51,000	\$258,000

(3.0-35 spaces
(1.0-71 spaces
515
\$ 0.025
\$ 3,935
\$ 14,595

4.0
280
\$ 0.025
\$ 2,140

3.5
237
\$ 0.025
\$ 1,810

3.5
878
\$ 0.025
\$ 6,710
12.0
1,820

**Includes area of Police Station

*Does not include access strip to Old South Street

35,625

(22,625
construction
in estimate)

(68,000
construction
with)

setup of such facilities in each particular area. Allowances have been made for the lighting and fencing of the lots.

The cost of parking meters has been estimated at \$70 per meter installed on the lots. Competitive bids at the present time are running well below this figure. A large, miscellaneous item amounting to \$24,500 for the entire program and a contingency reserve of \$17,700 have been included. It is believed that these figures are sufficient to provide for unforeseen expenditures in the development of such a program.

The total capital cost amounts to \$258,000 for the 388 parking spaces, or a unit cost per space of \$665.

Annual Earnings

Parking fees for the lots have been set low in order to encourage use of the facilities. A fee of five cents for two hours parking should attract many parkers, and on this basis, an annual gross revenue of \$14,595 is estimated, as shown in Table 9. Estimates of income for each facility are based upon observed parking habits in that particular area.

Proposed Financing

Table 10 summarizes the proposed method of financing the recommended parking program. The revenue from the parking lots, together with 50% of the curb parking meter revenue, should be used as a fund from which to retire a bond issue. The general fund of the City should be reimbursed from the parking fund in the amount of taxes lost on properties acquired for parking. In this way the parking program will not involve any general tax funds.

TABLE 10
PROPOSED PARKING FINANCING

<u>Curb Parking</u>	
Approximate Annual Revenue.	\$30,000
Less: Operating Expenses (50%)	<u>15,000</u>
Balance Available for Bond Service	\$15,000
<u>Off-Street Parking</u>	
Estimated Annual Revenue	<u>\$14,595</u>
Total Funds Available for Bond Service	\$29,595
<u>Bond Service</u>	
Bond Interest & Principal, @ 2%, 20 years	<u>\$16,513</u>
Surplus Over Bond Service	\$13,082
Less, Loss in General Taxes on	
Property Acquired for Parking	<u>\$ 4,071</u>
Net Surplus to City	<u>\$ 9,011</u>

Recommended Curb Meter Changes

In conducting studies of parking habits and practices in the central business district, data were obtained which demonstrated the need for changing certain curb parking spaces in order that their use might be coordinated with the actual desires of the motoring public. Although recommendations for such changes are not required by contract, it is felt that the best interests of the City will be served by presenting the recommended changes in this report, and Table 11 is included for this purpose.

All recommendations in Table 11 are based upon factual studies, present traffic generators and general land usage, and future off-street facility developments. Except where specifically referred to otherwise, all parking spaces recommended for revisions are now legal parking spaces.

The present practice of alternating manual and automatic type meters at the curb is both expensive and inefficient. The cost of winding the mechanism in the automatic meter, which is not required by the manual meter, is further increased by the dispersion of the two types throughout the area.

It is strongly recommended that the City take immediate action to standardize the type of meter used on the streets. The meters of the other type can then be used on existing or proposed parking lots. As additional meters are required, it is recommended that only one type be purchased, so that eventually all meters, both at the curb and in the lots, will be of the same type.

TABLE II
RECOMMENDED CHANGES
CURB PARKING METERS

STREET	LOCATION	DESCRIPTION	CHANGE
State Street between Center & Main Streets	West Side East Side	24 spaces 7 spaces	Add 2 hr. meters Add 1 hr. meters
Masonic Street between Center St. & Fire Station	West Side	7 spaces	Add 2 hr. meters
Center Street between State & Masonic Streets	North Side South Side	7 spaces 11 spaces	Add 2 hr. meters Add 2 hr. meters
Gothic Street	West Side East Side	(a) Meters #244, 245, 246 (b) Next 16 spaces After last meter, next 16 spaces	Change to 2 hr. meters Add 2 hr. meters
Court Street	South Side	4 spaces	Add 2 hr. meters Add 1 hr. meters
Strong Avenue at Railroad Station	West Side East Side	(a) Meters #137 to #147 (b) Meters #148 to #153 (a) Meters #160 to #166 (b) Meters #167 to #172	Change to 2 hr. meters Remove all meters Remove all meters Change to 2 hr. meters
Pleasant Street from Railroad Drive to Pearl St.	West Side East Side	6 spaces after meter #104 Last 3 spaces before Pearl St.	Add 1 hr. meters Add 1 hr. meters
Pleasant Street in front of Post Office	West Side	5 metered spaces	Change to 12 min. meters

<u>STREET</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>CHANGE</u>
Hampton Avenue at Pleasant Street	North Side	First 7 spaces from Pleasant St.	Add 2 hr. meters
Old South Street from Hampton Ave. to Main St.	East Side West Side	9 spaces Meters #28 to #41	Add 2 hr. meters Change to 2 hr. meters
New South Street from Main Street toward Railroad Overpass	East Side West Side	4 legal spaces nearest Main St. 11 legal spaces nearest Main St.	Add 1 hr. meters Add 1 hr. meters
King Street between Main Street & Merrick Lane	East Side	(a) Meters #191 and #192 (b) "No Parking" spaces at theatre	Change to 30 min. meters Prohibit parking 1 PM to 11 PM only; at other times allow 30 minute parking limit - no meters.
Main Street between Old South & Pleasant Sts.	South Side	Meters #61 to #67	Change to 30 min. meters

Future changes may be required in curb parking spaces as traffic volumes increase and as the off-street parking program is developed.

These changes will probably involve the removal of all curb parking on Pleasant Street between Main and Pearl Streets, and the changing of the parking time limit from one hour to 30 minutes for most of the curb spaces on Main Street.